

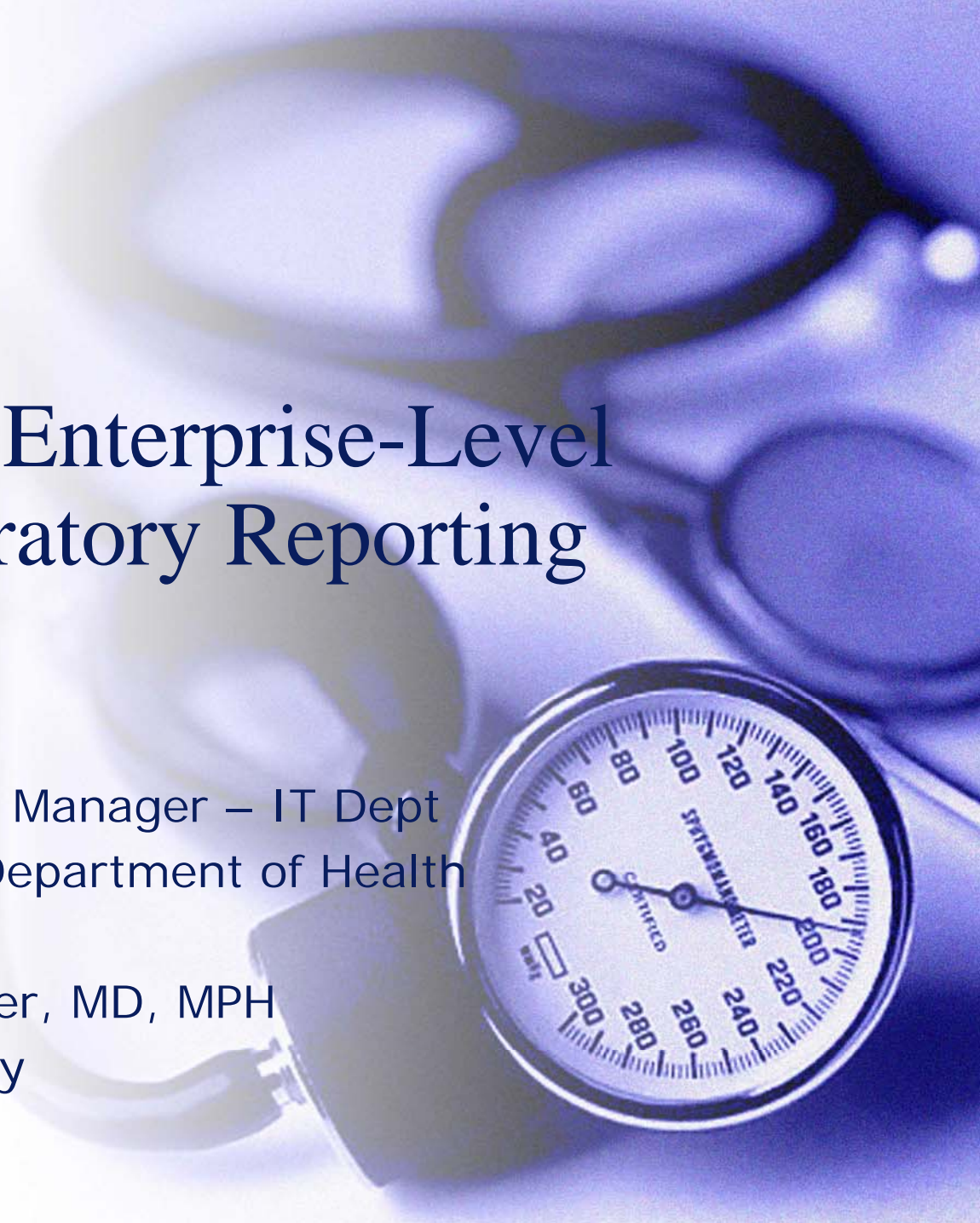
PA-ELR: Constructing an Enterprise-Level Electronic Laboratory Reporting System

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Agenda

Overview – Legacy ELR vs. PA-ELR

Project Documentation

Developing an HL7 Guide

Relationship Building

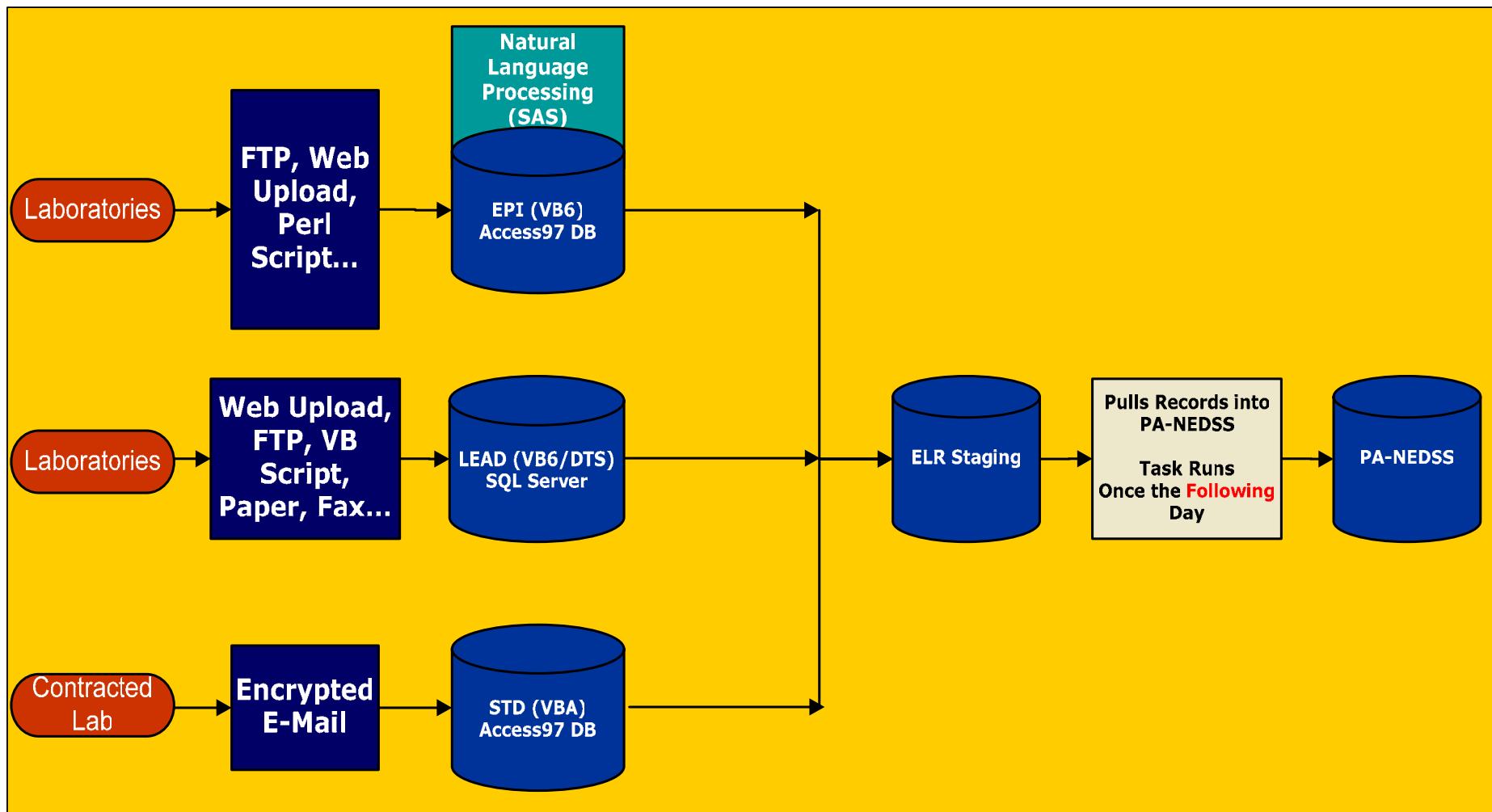
Collaboration

Summary

Overview - Legacy ELR Problems

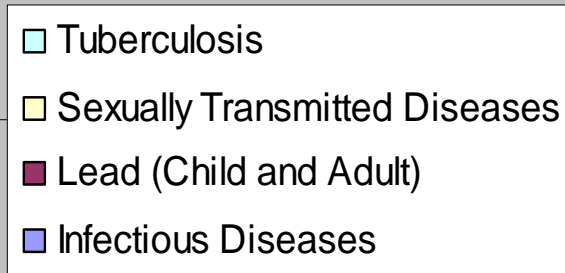
- Support of Silo Applications
- Managing Automated & Manual Components
 - web upload, FTP, VB Scripts, Perl Scripts
- Lack of Scalability of Application
- Messages Missing Critical Data Elements
- Various Message Formats
 - HL7 2.1 , 2.2 , 2.3.Z
 - Comma delimited files
 - Paper reports
- Processing Time Lag (1 day minimum)
- Inconsistent Security

Overview - Legacy ELR Workflow



Monthly ELR Reports Processed

Number of Reports



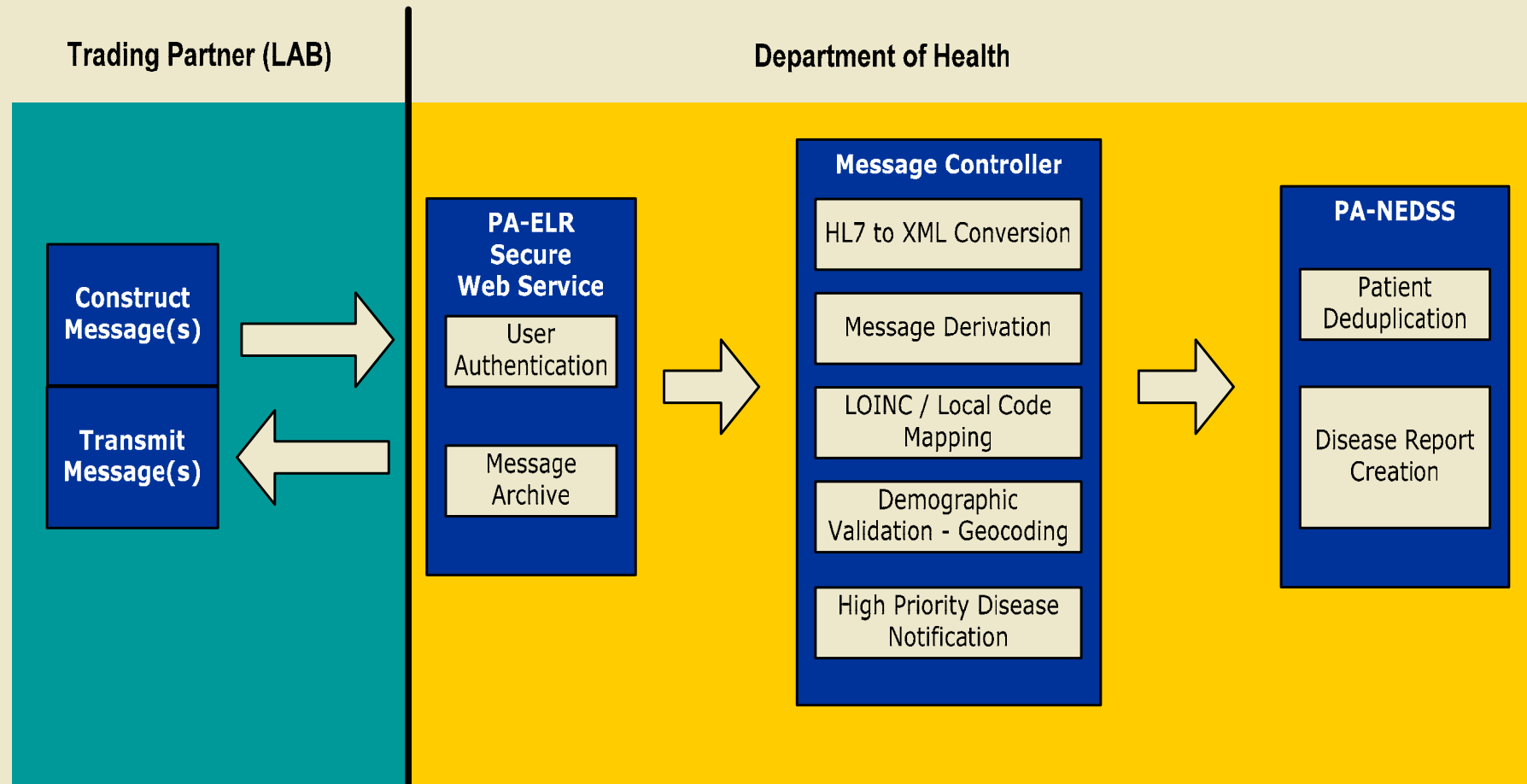
Feb-03 Apr-03 Jun-03 Aug-03 Oct-03 Dec-03 Feb-04 Apr-04 Jun-04 Aug-04 Oct-04 Dec-04 Feb-05

Month

Overview – PA-ELR Goals

- Only One (1) Application to Support
- Reduce Reporting Cycle Times (10seconds)
- PHIN Standard Coding Schemes / Protocols
 - Use of LOINC / SNOMED
 - HL7 Messaging, Code Tables
- Message Quality – Feedback to Labs
- Single Security Model – PA-NEDSS Portal
 - Data signing using digital certificates
- Minimal Client Footprint (Web Services)
- Scalability - Receive All DOH ELR Messages

Overview - PA-ELR Workflow





Commonwealth of Pennsylvania Electronic Lab Reporting

[Welcome](#)[Administration](#)[Disease Reporting](#)[Alerts](#)[Analysis & Reports](#)[Log Off](#)Session Expires: 29 minutes [Renew](#)Location: [Administration](#) > ELR File Upload

ELR Lab File Upload

Due to security reasons you must re-enter your login information to upload lab data.

User Name:

Password:

Select File to Upload:

[Browse...](#)

Once you have selected your HL7 formatted input file press "Upload".

[Upload](#)

Report Summary

Patient Name: Firstname M. dupresubmitb	Patient ID: 2360	Gender: Male	Birth Date: 06/02/1960
Primary Residence: 2170 Union Street, Apt 100, Reading, PA 19604			Phone Number: None Available

Report ID: 911	Condition: Lead poisoning, child (<16 years old)	Reported Date: 02/18/2005	Reported By: ACL Inc - Aurora Health Care ELR
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Condition	Lead poisoning, child (<16 years old)	Report Status	Unlinked
Onset Date		Reason for Discard	- Discard Reason - <input type="button" value="Discard"/>
Date of Clinical Diagnosis			
Initiated By	PA-ELR		
Calculated Age At Time of Report	44 years, 8 months		
Attending Physician			

Hospitalization Information

Patient Hospitalized?

Death Information

Did Patient Die?

Status at Diagnosis

☐ Dead ☐ Alive ☒ Unknown

Report Assignment/Jurisdiction

Assigned To [Lead Manager](#)

Responsible Jurisdiction Adams

Administrative Jurisdictions

CDC Reporting County

Current Other Involved Jurisdictions

Southcentral
Adams
Berks
Southeast
Southwest
Allegheny
Berke

Project Documentation

- As-Is Analysis
- To-Be Design
- Evaluation of Various Products
 - Tools Assessment Document
- Product / Technology Recommendation
 - Cost Considerations
 - Overall Conclusion and Recommendation



Legacy ELR As-Is Analysis

- Business Purpose
- Process / Workflow Description
- Stakeholders Involved in the Process
- Technologies and Software Involved
- Historic ELR Volumes
- Issues with the Legacy Process

Name	Issue
EPI_TRANSPORT_01	The DTS process from the BOL database in the past, has not delivered data on time. The CDESS application assumes that the nightly DTS has been preformed correctly. There is no automated monitoring process to determine if this data has been transferred in a timely manner to the BOL staging database.
EPI_TRANSPORT_02	The Lab data must be taken from the Lab system. This should be an automated process where the Lab delivers this data to PADOH.
EPI_TRANSPORT_03	Security Issue - No data is transmitted over secure communication methods between business partners and the PADOH. Data contained on PADOH network drives have only user access to the folders restricted. But data containing patient identifiable information is not encrypted on the disk drives contained in both flat files and database files.

To-Be Design

- Project Goals / Objectives
- Critical Success Factors
- Develop Requirements from As-Is Issues
- Define Major Processes



4.2.1 Business Purpose

The purpose of the Trading Partner Negotiation process is to:

- ELR Trading Partner makes request to send ELR reports to DOH
- DOH Approves ELR Request
- Setup the terms of the minimal trading relationship between the DOH and the ELR Trading Partner.
- Determine the content and data quality standards of the ELR messages to be reported to the DOH.

Tools (Product) Assessment

CDC Requirements

	Strong Encryption	Windows 2000	LOINC, SNOMED, ICD, CPT	LDIF	X12	HL7 3.0	HL7 2.3	HTTPS	ebXML	SOAP
Tool X		●	●		●	●	●			

- Possible Questions to be Answered
 - Meets PHIN, ??-NEDSS, & State requirements?
 - Learning curve for the tool and training costs?
 - Quality of technical support ?
 - Credibility of vendor, partners and customer base?
 - Market share of product and vendor?

Solution – TCO & Recommendation

• Conclusions

– Total Cost of Ownership (TCO)

- Software License and Maintenance Fees
- Hardware Costs
- Consulting and/or State Staffing Costs

– Short List of Solutions and Final Recommendation

Acquisition	Qty	Unit Price	Freq	cost
Tool Enterprise Version	1	\$ 50,000.00	1	\$ 50,000.00
Database cost	1	\$ 6,000.00	1	\$ 6,000.00
Required Software	3	\$ 14,484.00	1	\$ 43,452.00
Production Licenses	1	\$ 33,000.00	1	\$ 33,000.00
Development Licenses	3	\$ 5,000.00	5	\$ 75,000.00
Annual Support Costs	1	\$ 4,000.00	5	\$ 20,000.00
Consulting Costs	1	\$ 250.00	40	\$ 10,000.00
				\$ 237,452.00

Deployment	Qty	Unit Price	Freq	cost
Server Hardware	3	\$ 6,200.00	1	\$ 18,600.00
Development	1	\$ 47,000.00	1	\$ 47,000.00
Configuration	1	\$ 47,000.00	1	\$ 47,000.00
				\$ 112,600.00

Maintenance	Qty	Unit Price	Freq	cost
Administration	1	\$ 65,000.00	1	\$ 65,000.00
				\$ 65,000.00

Acquisition	\$ 237,452.00
Deployment	\$ 112,600.00
Maintenance	\$ 65,000.00
Total	\$ 415,052.00

Development	R	hrs/wk	pp	wks	DF	hrs	unit price	cost
Tool Overhead	B	37.5	2	4	1	300	\$ 25.00	\$ 7,500.00
Custom W/S	B	37.5	2	4	1	300	\$ 25.00	\$ 7,500.00
Custom W/S	C	40	1	4	1	160	\$ 200.00	\$ 32,000.00
		0	0	4	0	0	\$ -	\$ -
								\$ 47,000.00

Configuration	R	hrs/wk	pp	wks	DF	hrs	unit price	cost
Tool Config	C	40	1	4	1	160	\$ 200.00	\$ 32,000.00
Additional Setup	B	37.5	2	4	2	600	\$ 25.00	\$ 15,000.00
		0	0	4	0	0	\$ -	\$ -
		0	0	4	0	0	\$ -	\$ -
								\$ 47,000.00

Administration	R	hrs/wk	pp	wks	DF	hrs	unit price	cost
App Admin.	B	10	1	260	1	2600	\$ 25.00	\$ 65,000.00
		10	0	260	0	0	\$ -	\$ -
		10	0	260	0	0	\$ -	\$ -
		10	0	260	0	0	\$ -	\$ -
								\$ 65,000.00

Developing a PA HL7 Guide

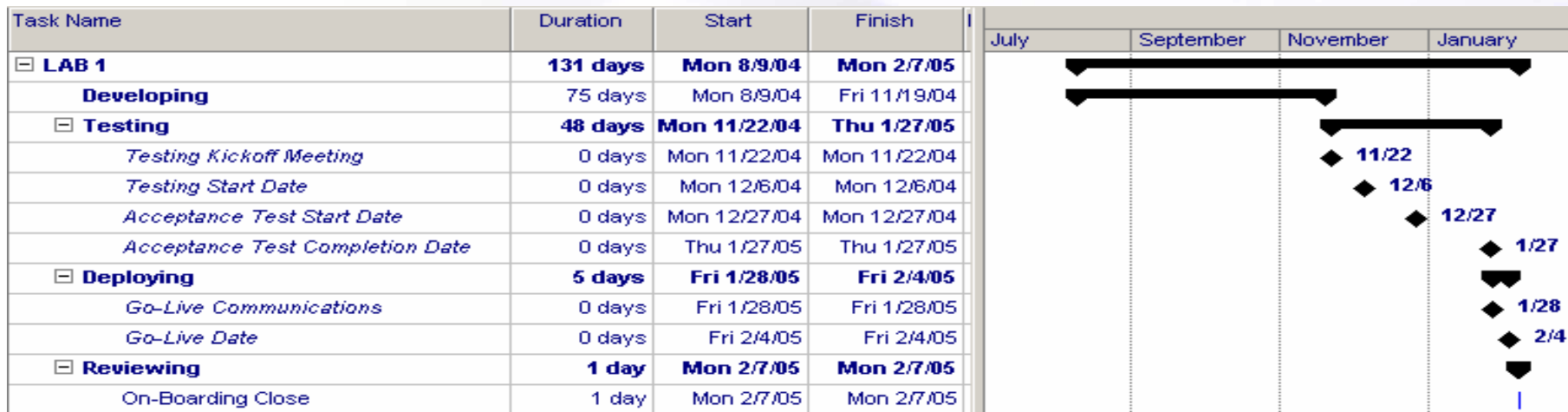
- Starting Point → PHIN HL7 v2.3.1 Guideline
- HL7; The Open-Ended “Beast”!
- PA-NEDSS Required Core Data Elements
- LOINC, SNOMED, Local Codes
- Program Area (e.g. IDE, STD, Lead...)
- A “Living” Document

Relationship Building – Public Health

- Program Area Staff Buy-In
- State Laboratory Licensing Entity
 - Pennsylvania Bureau of Laboratories
- Municipal and County Health Departments
 - Philadelphia Public Health Department
 - Allegheny (Pittsburgh) County Health Department

Relationship Building – Labs

- Laboratory Surveys
- Identify Trading Partners / Willing Pilots
 - National and Regional Labs
 - Large Hospital Based Labs
- Eligibility & Prioritization
- Trading Partner On-boarding Process



Relationship Building – Labs [cont'd]

- Develop Communications
 - Email
 - Conference calls
 - Public web site
- Planning for Future Trading Partners
 - Maintain Labs in the On-Boarding Queue
- Post Deployment - Feedback from the Labs

Collaboration

- Sharing - Why “Reinvent the Wheel”?
 - Similar development technology
 - PADOH & Ohio Department of Health
 - Lessons learned and best practices
 - NAPHIT (National Association of Public Health IT)
- Building Standardization – What a Concept!?
 - CDC Data Standards Work Group

Thank You

&

May the

“ELR Force”

be with You!!!

